



A.D. 1816 N° 4061.

S P E C I F I C A T I O N

OF

ROBERT SALMON.

CATHETHERS AND BOUGIES.

L O N D O N :

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Catheters and Bougies.

SALMON'S SPECIFICATION.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, ROBERT SALMON, of Weeburn, in the County of Beds, Surveyor, send greeting.

WHEREAS His most Excellent Majesty King George the Third did, by His Letters Patent under the Great Seal of the United Kingdom of Great Britain and Ireland, bearing date at Westminster, the Nineteenth day of August, in the fifty-sixth year of His reign, give and grant unto me, the said Robert Salmon, my exors, admors, and assigns, His especial full power, sole privilege and authority, that I, the said Robert Salmon, my exors, admors, and assigns, during the term of years therein mentioned, should and lawfully
10 might make, use, exercise, and vend, within England, Wales, and the Town of Berwick-upon-Tweed, my Invention of "IMPROVED INSTRUMENTS FOR COMPLAINTS IN THE URETHRA AND BLADDER;" in which said Letters Patent there is contained a proviso, that if I, the said Robert Salmon, shall not particularly describe and ascertain the nature of my said Invention, and in what manner
15 the same is to be performed, by an instrument in writing under my hand and seal, and cause the same to be inrolled in His Majesty's High Court of Chancery within two calendar months next and immediately after the date of the said Letters Patent, that then the said Letters Patent and all liberties and advantages whatsoever thereby granted, shall utterly cease, determine, and
20 become void, as in and by the same (relation being thereunto had) may more fully and at large appear.

NOW KNOW YE, that in compliance with the said proviso, I, the said Robert Salmon, do declare that my said Invention of "Improved Instruments

Salmon's Improved Catheters and Bougies.

for Complaints in the Urethra and Bladder" are described and specified in manner following, reference being had to the Drawings (that is to say) :—

My improved instruments are for the purpose up the urethra and into the bladder, and discharging its contents, or introducing any medicament thereto, and are of three several descriptions, as follow:—First, a jointed catheter, 5 made of metal or other materials ; second, a metallic jointed bougie or probe ; third, an improved pliant or resistable bougie, to be covered with wax, caotouch, or any other substance. In order to understand the peculiar properties of these my instruments, and to shew the difference, principle, and superiority of my Invention over every other, previously to specifying my Invention, it may 10 be useful to point out the requisites in the instruments for this purpose, the defects of those in use, and the difference in the action of mine. First, in the human body it is certain that the passage or canal through the urethra and into the bladder is not of any regular continued shape, either straight or circular, but is of compound irregular curvature, so that no unyielding instru- 15 ment, of any shape whatever, can be passed through the whole length of the urinary canal and neck of the bladder, without pressing unequally in the passage, or on entering of the bladder and distorting of the natural course ; consequently, altho' an instrument may be of such curvature as to match the canal, yet considerable art and some force must be exerted to get it to pass into 20 such situation. Under these considerations it is manifest that the requisites, in any instrument for passing into the bladder, is, that it change its curvature in its progress through the urethra and neck of the bladder, and not distort, put out of natural situation, or injure any of the passage which it is only meant to open and pass. Contrary to this requisite, the present construction of 25 catheters and probes is to form them as near as can be to the curvature of the passage, and at the same time of such shape as they may be passed, and these composed of metal, and unchangeable in their curvature, except where the partially elastic tin is used, and were these exactly made of the natural bends of the passage, it would be altogether impossible to pass them ; hence it is 30 manifest a distortion of the line of passage takes place whenever passed, and unless art be used so to distort and force part of the passage out of its natural course, the point of any such instrument would not pass into the bladder. From these considerations and facts in practice the common bougie, when properly tempered, is found generally the best instrument to pass. But these, 35 from the uncertainty of the composition with which they are covered, are liable to objections ; if covered with caatouch or elastic gum they, without difficulty and improper force of their joints in the advanced part of the urethra or splimeter, will not bend of sufficient sudden curvature to pass such splimeter

Salmon's Improved Catheters and Bougies.

and up into the bladder; and when so passed their elasticity is all the time exciting an unequal and improper partial force on parts of the passage, they having always the tendency to become a strait line. To the common bougie covered with wax, although the best instrument, considerable objections are to
 5 be found. The basis of these is a slip of cloth covered with wax, and rolled up to the size required. To this construction the following objection arises:— In rolling up a slip of cloth coated with stiff wax, it becomes a cylinder of cloth, and in mechanics it is well known that cylinders are most difficult to bend without breaking or distorting; and in rolling up and pressing such
 10 bougies it commonly happens that they roll atwist, and some of the fine filaments of the cloth sometimes work to the surface of the bougie, which, from the moisture of the urethra, is raised, and becomes rough and irritating, and so frequently does this happen, that seldom is any bougie fit to be passed more than once. Again, the due pliability of these much depend on the con-
 15 sistency of the wax or composition with which they are covered; if this be too hard (which by time they always get) they are apt, on use in changing of their curvature, to crack and bear forcibly on some parts of the passage; if they are too soft they double in their course, and will not pass at all, or part of their composition is softened by the oil and warmth of the urethra, and so
 20 rubbed off and left there.

Having thus shewn the defect of these, the principle and advantage of my Invention may be thus understood. My jointed catheter being formed of a great number of pieces of metal or other solid substance, will, in its passage, adjust itself to the course of the canal without the least violence from its point
 25 or sides. My metallic jointed bougie being similarly made (except being solid), possesses the same advantages, besides which also in the joints of both these such a quantity of oil or lubricating composition may be placed as to lubricate the urethra, or even convey a portion of it into the bladder. My improved pliant bougie will be found to differ from all others, inasmuch as its pliability
 30 and power of resistance is given by the construction of the basis itself, and does not depend on the wax or composition with which it may be covered. Also there is no possibility of any filaments being worked to the side, they are so equally coated that they may be many times used.

Having thus defined the principles, I shall now by Drawings and reference
 35 exemplify the same, not confining myself to any particular size or material, or number of joints or shape of the pieces of which they may be made.

Fig. 1, jointed metallic flexible catheter. A, tubular stem; B, B, tubular beads, either spherical or oval, or mixed; C, terminating bead, the neck thereof flattened, and having an eye to receive the wire or thread, and entering

Salmon's Improved Catheters and Bougies.

into the next bead above it; D, a fine double wire or string passing thro' the tube and all the beads, and through the eye in the terminating bead, thereby keeping the whole together; E, cork fitted to the mouth of the tubular stem, which cork being put in fastens the thread and keeps the beads together, and this cork having a hole in it will admit the point of a syringe or 5 other instrument for injecting any liquid into the bladder, or any part of the urethra, according to the length of the instrument, which may be regulated at pleasure by the number of pieces introduced on the thread or wire. From this description it must be manifest that, when the wire or string D is somewhat tightened, all the beads will be brought in contact, and form one flexible 10 tube to be passed into the bladder, and that when so passed the urine will pass by the flattened sides of the terminating bead, and along the inside of the beads and tube, or any liquid may be injected by the same course.

Fig. 2, straight metallic bougie or probe. A, stem, with head to denote the upper side, either to the sight or touch; B, joint in A, to which the pieces 15 C, C, C, are jointed and pinned, and the joint B should have play both upwards and downwards, so as to work as much as ninety degrees of angle; C, C, C, straight pieces jointed to move upwards but not downwards, so as to form upwards such curve as may be required; D, terminating joint turned up at the end, so as more readily to enter the splimeter of the bladder. 20

Fig. 3, the same in its curved shape as passed through the urethra and into the bladder. From this view of the straight instrument it must appear that, although it will pass, it does not so correctly assume the shape of the curve and the sudden turning up into the bladder, as if it were made of curvilinear joints; but if the joints be short the objection to their being straight is not 25 material.

Fig. 4, curvilinear metallic bougie or probe. A, stem, with head as before; B, joint in A, having plenty of play, both upwards and downwards, as before; C, C, C, curvilinear pieces, jointed so as to move upwards but not downwards; D, terminating joint as before. From a view of this only it may be observed, 30 that the curvature of the pieces will make them adjust more truly to the sudden turn into the neck of the bladder.

Fig. 5, basis of pliant and resistable bourgies to be covered with any compositions. A, a piece of platted line, commonly called Patent line, bound with thread or fine twine. This line being platted has no inclination to twist, and 35 is in itself perfectly pliant in every direction; but by binding of it with thread or twine, it becomes resistable, according to the degree of tightness with which it is bound. After a basis is prepared of any required size, as above described, to make the common wax bougie, they are thrown into boiling wax,

Salmon's Improved Catheters and Bougies.

and thoroughly saturated therewith ; they are then taken out, and when cold rolled on a slab or table to make them smooth and straight. After this they are to be coated with other composition, medicated or not, by dipping them as in the making of candles, or by laying the composition on hot with a brush ;
 5 after which it only requires to be again somewhat rolled on the slab, and polished up by passing through the hand ; and bougies being so constructed will bear using many times. In this bougie the only parts claimed by me are its basis, and determining its flexibility and manner of coating it. To any peculiar coating or covering I make no claim, altho' from this mode of con-
 10 struction a facility arises of medicating certain parts of the bougie to be applied where it may be wanted.

In witness whereof, I, the said Robert Salmon, have hereunto set my hand and seal, this Seventeenth day of October, in the year of our Lord One thousand eight hundred and sixteen.

15

ROBERT (L.S.) SALMON.

AND BE IT REMEMBERED, that on the Seventeenth day of October, in the year of our Lord 1816, the aforesaid Robert Salmon came before our said Lord the King in His Chancery, and acknowledged the Specification aforesaid, and all and every thing therein contained and specified, in form above
 20 written. And also the Specification aforesaid was stampd according to the tenor of the Statute made for that purpose.

J E K Y L L.

Inrolled the Eighteenth day of October, in the year of our Lord One thousand eight hundred and sixteen.

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FIG. 1.

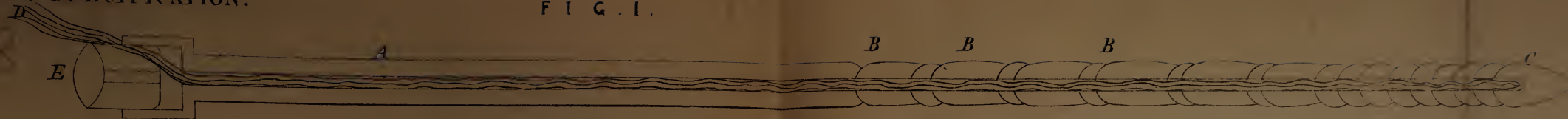


FIG. 2.

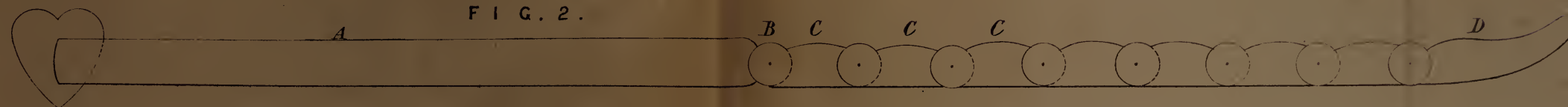


FIG. 3.

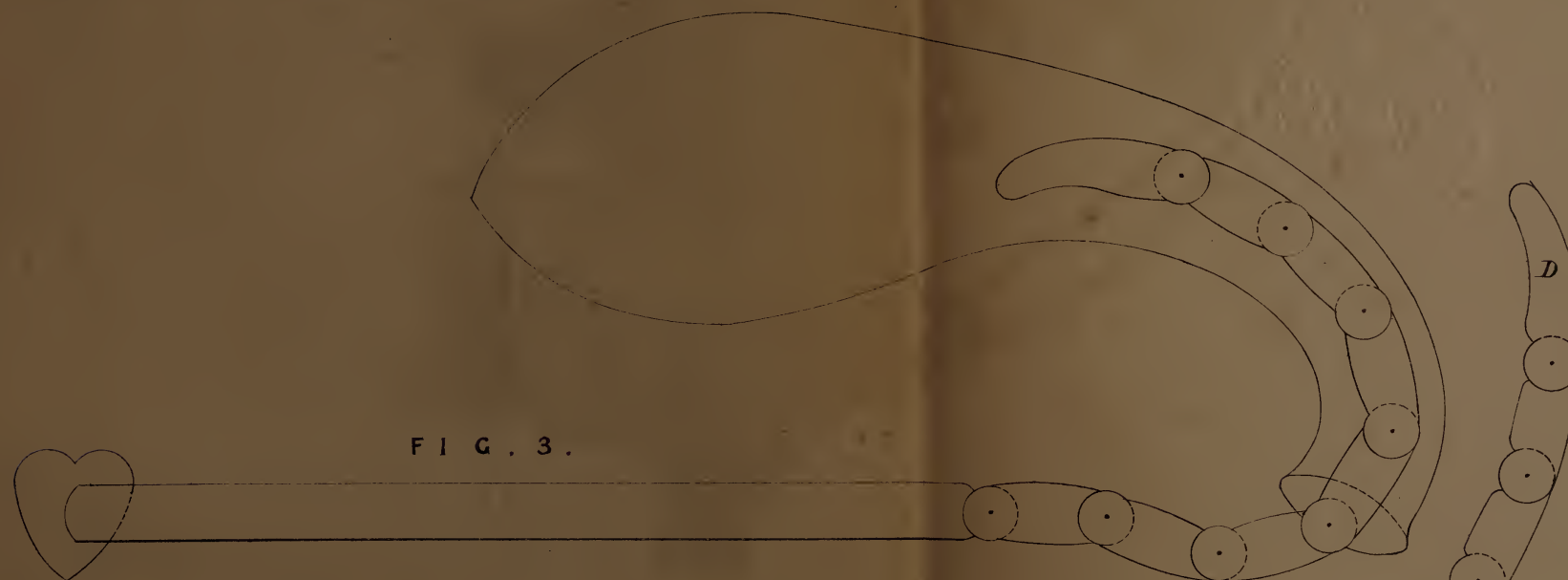


FIG. 4.

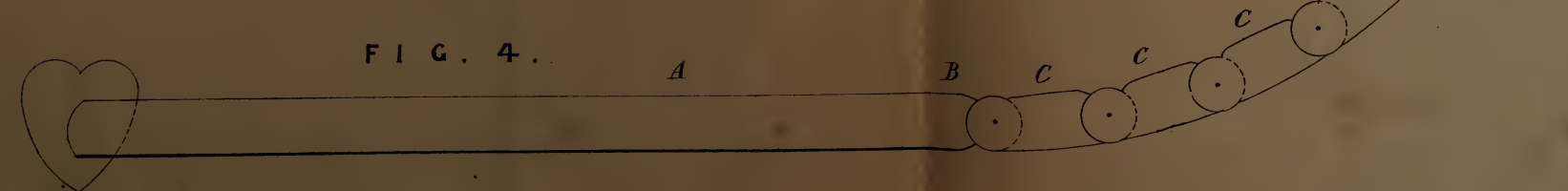


FIG. 5.



The enrolled drawing is not colored.

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